



# ***From 'Cess' to 'Success'***

## **The Lake Waukewan Watershed Septic System Improvement Initiative Cost-Share Program**

**2015 Drinking Water Source Protection Conference  
May 6, 2015**

**Patricia Tarpey, Executive Director  
Lake Winnepesaukee Association**

**John Edgar, Community Development Director  
Town of Meredith**



# Septic Problems!







- 65% of NH homes rely upon septic systems (*2000 census*)
- 80% of new development in NH rely upon septic systems (DES, 2008)



- Septic installations regulated by DES since 1967
- DES Licensing of designers and installers since 1979



- 8-10% of DES subsurface approvals address repairs or replacement of existing systems (DES, 2008)



- RSA 485-A:39 passed in 1993, requires site assessments of systems within 200 feet of great ponds or 4<sup>th</sup> order rivers in NH when property changes hands to determine if the ISDS meets State standards for ISDS established in Env-Wq 1000.



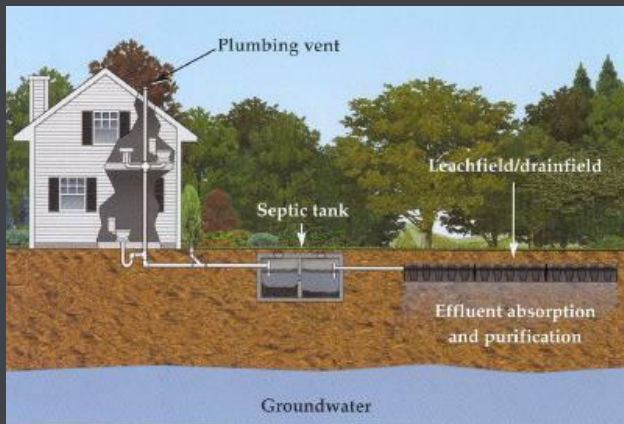
- Upgrading substandard systems is *not* required





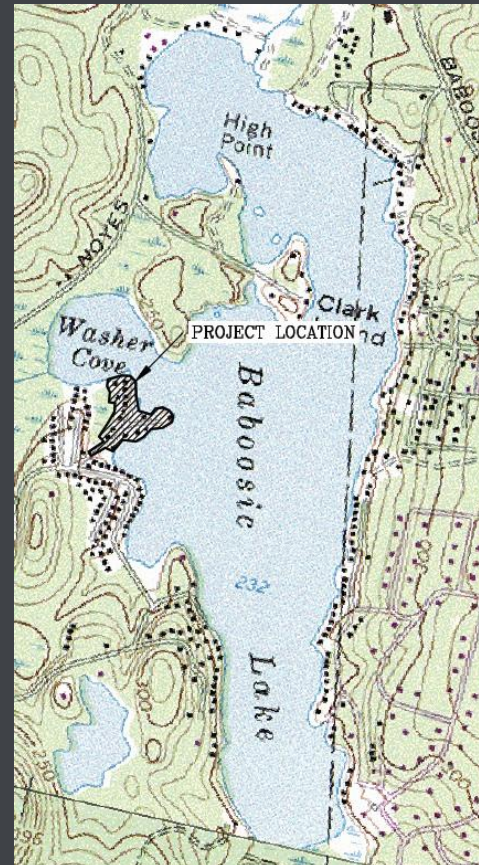
# Watershed-based Plans in New Hampshire and Phosphorus Contributions from Septic Systems

- Number of septic systems in the watershed
- Average number of people per housing unit
- Seasonal occupancy
- Age of the system
- Pounds of phosphorus per person using the system
- Soil retention rates



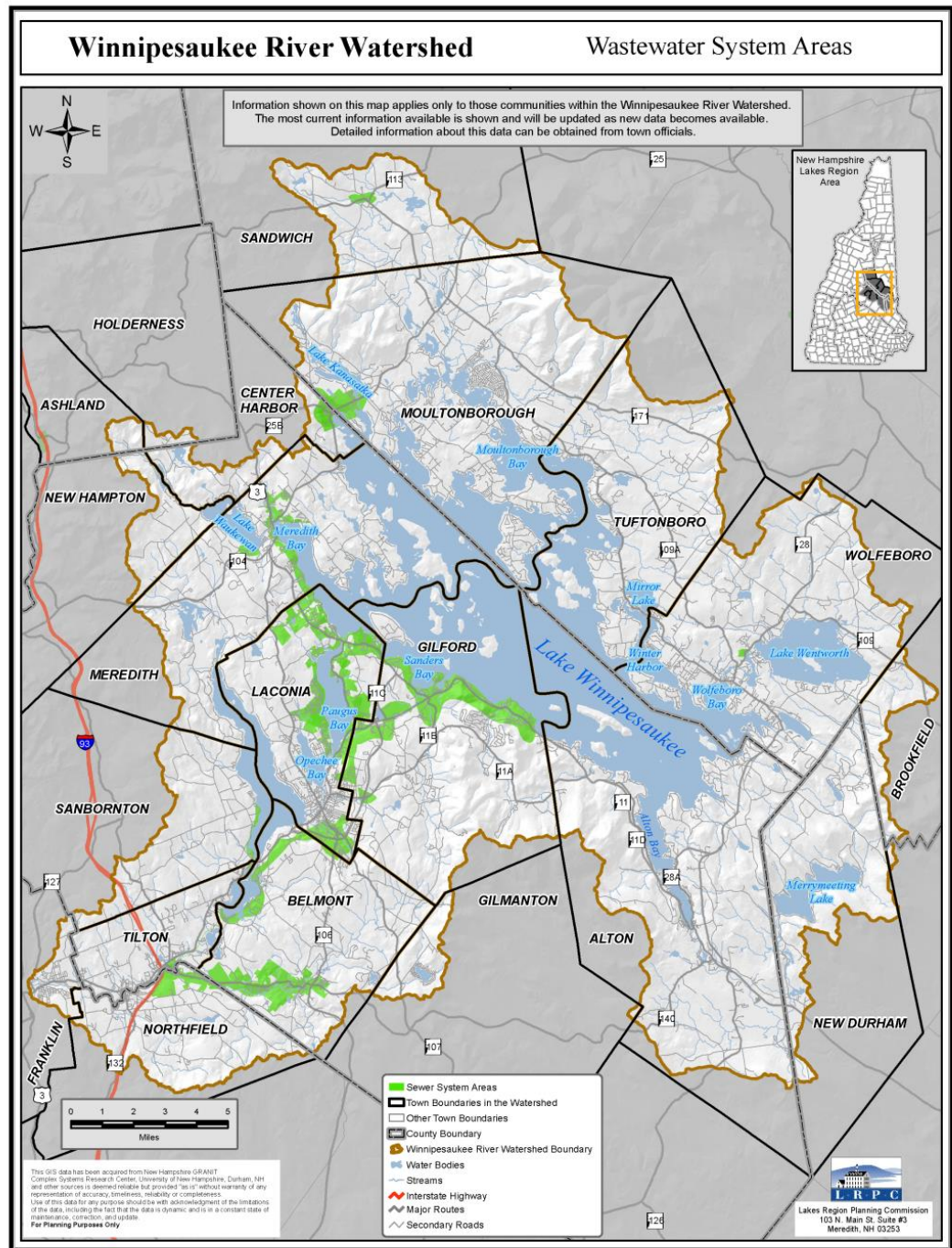
# Watershed-based Plans in New Hampshire and Phosphorus Contributions from Septic Systems

- Baboosic Lake – 43%
- Beaver Lake – 28%
- Pawtuckaway Lake – 27%
- Cobbetts Pond – 22%





The majority of the Winnepesaukee River Watershed relies on individual subsurface disposal systems (ISDS); i.e. septic systems



# Protecting the quality of Lake Waukewan is a high priority for the town of Meredith, DES, and the LWA.



- Lake health and aquatic life
- Recreation
- Public health
- Drinking water



## ADVISORY

High levels of BACTERIA have been detected in this WATER.

N.H. Dept. of Environmental Services

**WATER CURRENTLY NOT  
SUITABLE FOR WADING  
OR SWIMMING!**

Exposure to this water may cause nausea, vomiting, diarrhea, or fever.

Children, the elderly and others with sensitive immune systems are especially vulnerable.

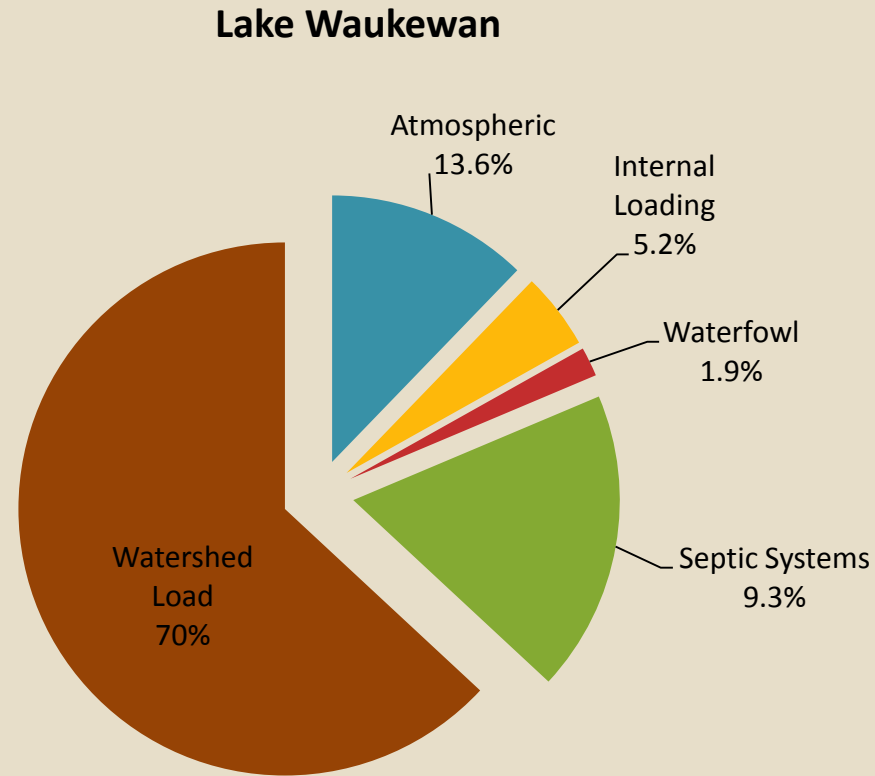
All current advisories posted at [www.des.nh.gov](http://www.des.nh.gov).  
Click "beach advisory" in left column



# A primary concern for the Lake Waukewan watershed is nutrient loading and its impact on water quality



## Key Characteristics





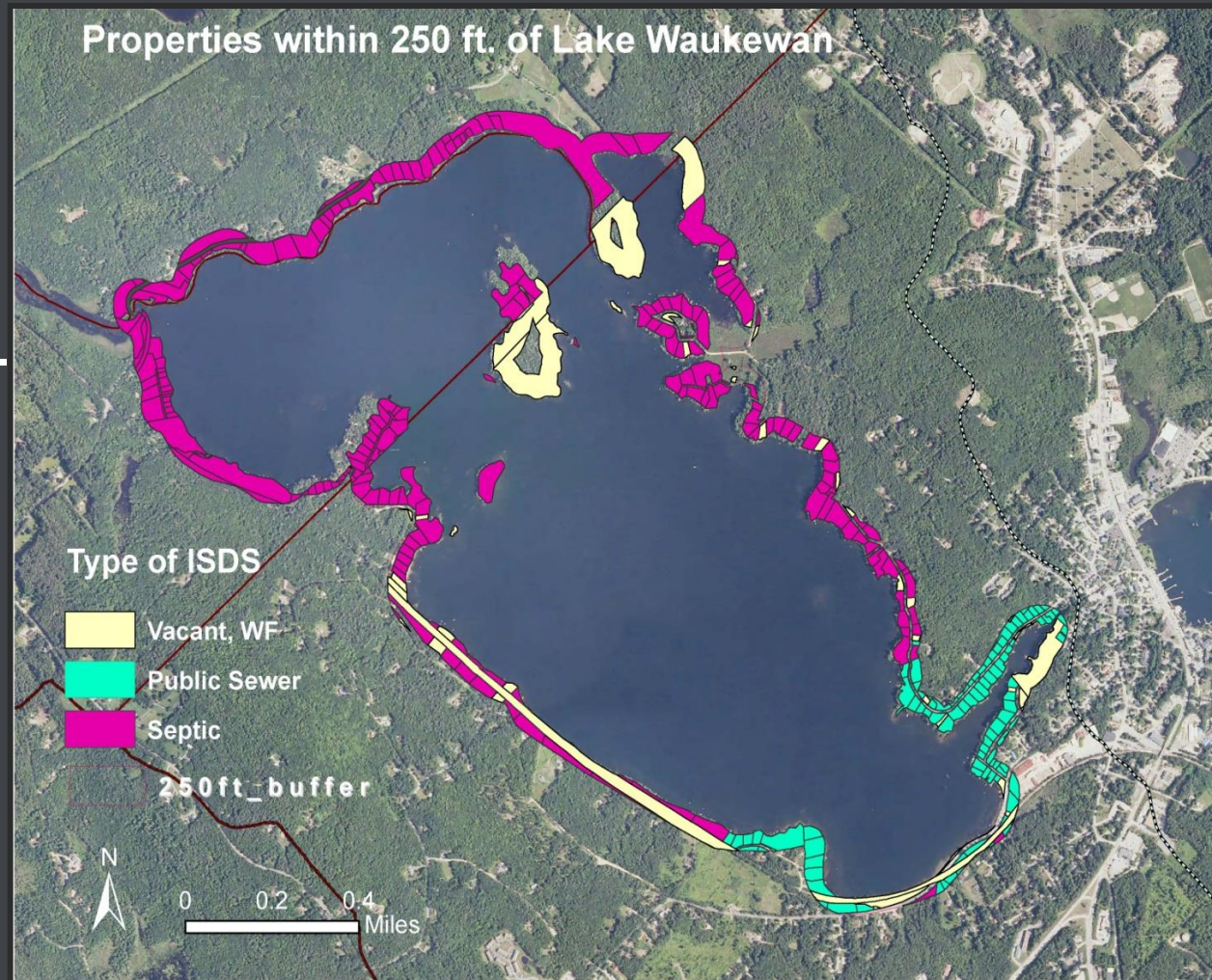
**2002 Source Water Assessment report ranked the public water supply as of high susceptibility to nutrient loading from septic systems.**

# Properties with septic systems located within 250 ft. of Lake Waukewan

Meredith: 103

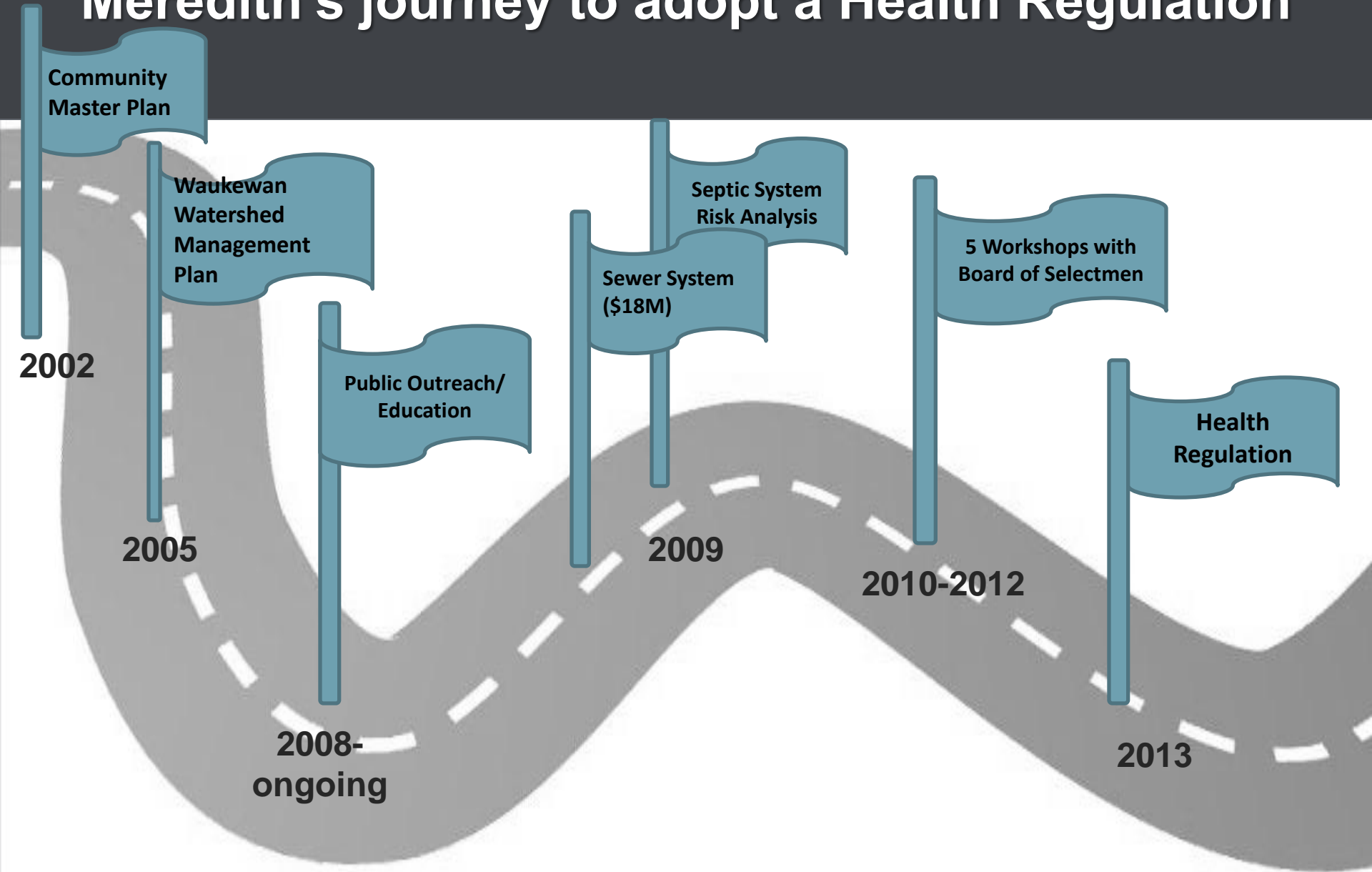
New Hampton: 46

Center Harbor: 32



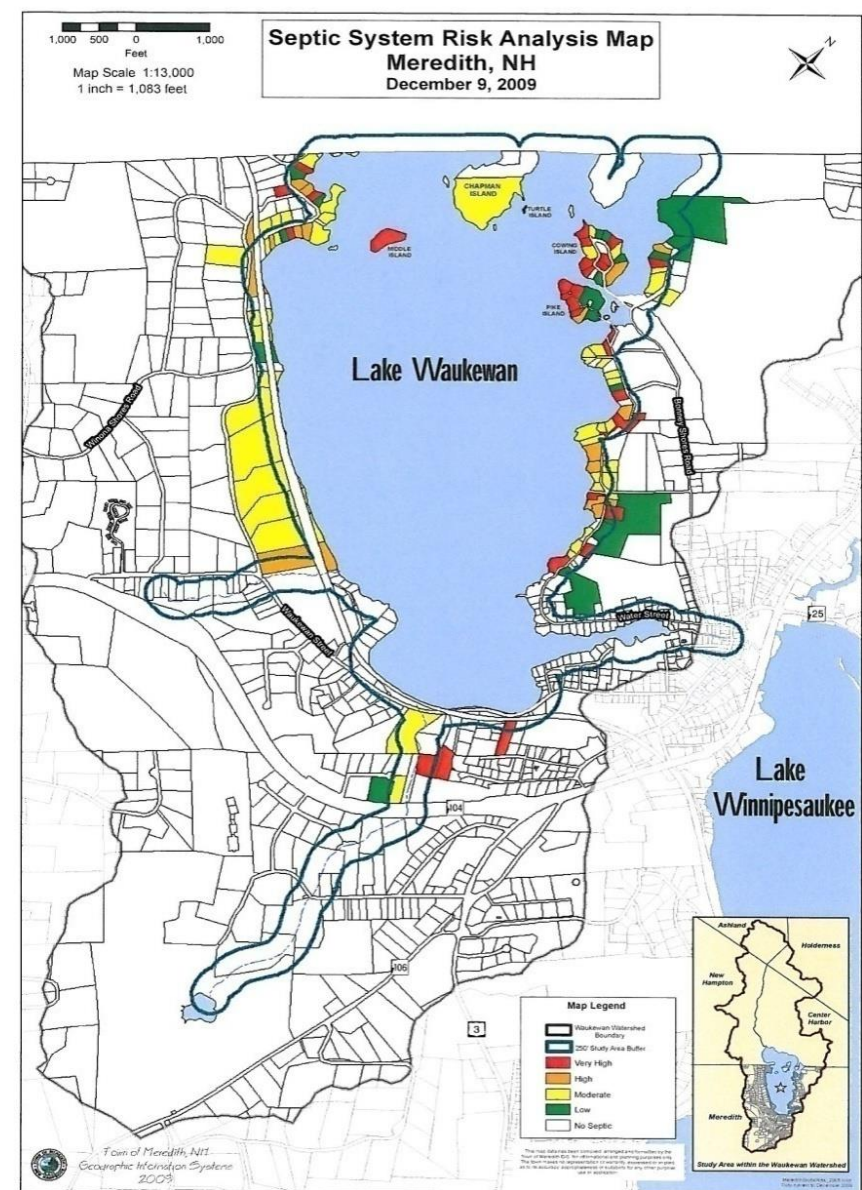


# Meredith's journey to adopt a Health Regulation



# 2009 Septic System Risk Analysis

- Parcels having on-site disposal systems within 250' of Lake Waukegan
- Extensive file review
- 3 known attributes for all systems: age, proximity to lake, slope
- 31 out of 112 Meredith parcels; “Very High Risk”
- Partial inventory of Center Harbor and New Hampton developed shorefront properties; approx. 30 with no approval on file





# Meredith's Health Regulation

- Enabling Authority: **RSA 147:1**  
**The health officers of towns may make regulations...relating to the public health...with approval from the Board of Selectmen...**
- Focus is on the potential worst-of-the-worst
- Incorporated it into Building Permit/ Health Officer processes

# “Regulations Pertaining to Certain Subsurface Wastewater Disposal Systems in the Lake Waukewan Watershed”

- Additional bedrooms
- Increase in living space area
- Increase in non living space area





# **“Regulations Pertaining to Certain Subsurface Wastewater Disposal Systems in the Lake Waukegan Watershed”**

## **Key aspects of the Regulation**

- If no operational approval exists, a professional evaluation/certification is required
- Compliance is required within 24 months of notification
- Re-certification every 5 years
- If in failure, then the typical replacement process involving property owner/ Health Officer/NHDES takes place

# Septic System Improvement Initiative

## Two Grant Programs – Phased Implementation

Evaluation of Septic System Risk

- Inventory
- Evaluate
- Identify

Education

Septic System Improvement

- Repair/upgrade

Reduction in nutrient loading





# Evaluation and Certification Program

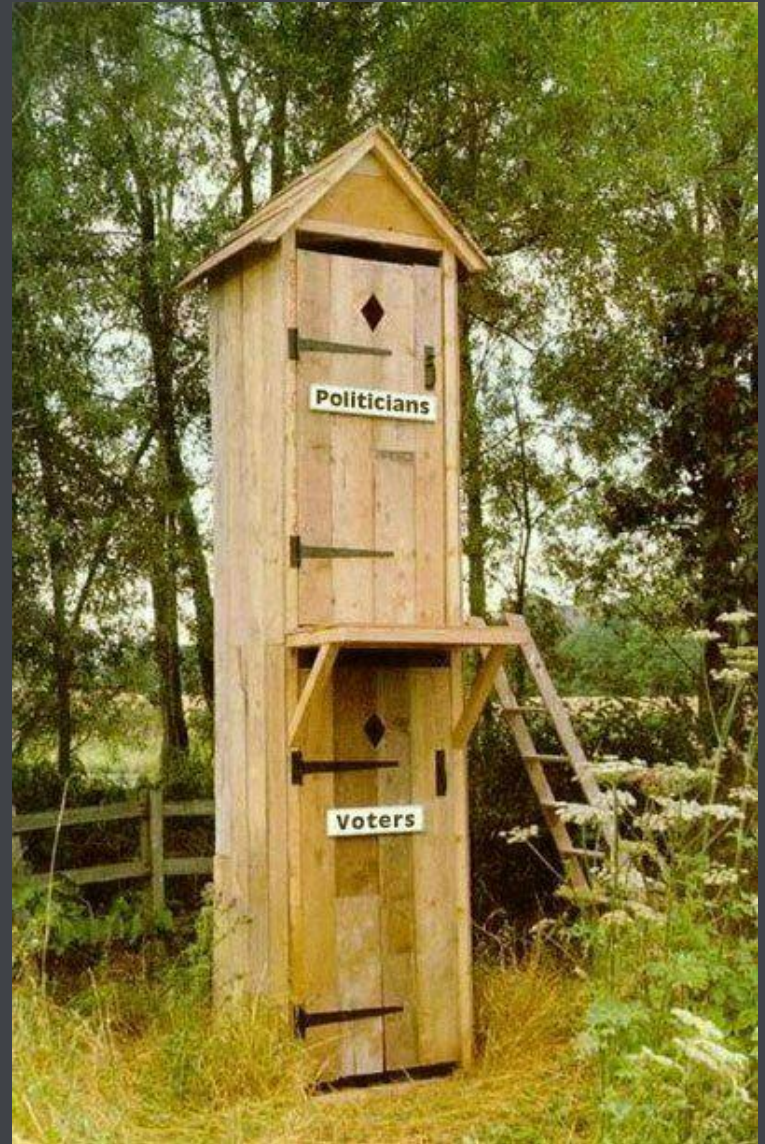
Voluntary Cost Share Program –  
50/50

One Certified Evaluator –  
Meridian Land Services, Inc.

## Criteria:

- Open to New Hampton, Center Harbor, and Meredith properties located within 250 ft. of lake
- Systems over 25 yrs in age
- No operational approval on file

Funded through the Source Water  
Protection Program





# Septic System Risk Analysis

Eligible Properties for Septic Sys

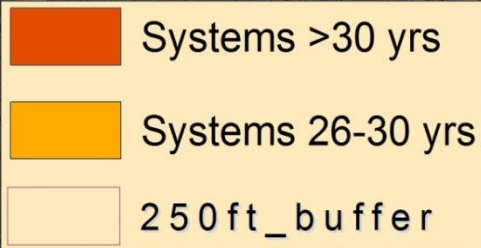
**181 Properties**

**88 properties eligible**

**Pre-1967: 49%**

**Pre-1983: 91%**

**Seasonal use: 73%**



0 0.2 0.4  
Miles



# Evaluation Process

- Home inspection
- Mini septic seminar
- Evaluation/ inspection



## SEPTIC SYSTEM EVALUATION AND CERTIFICATION FORM


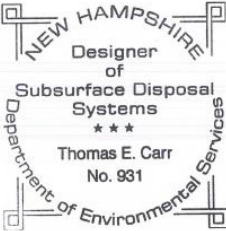
This form shall be completed in its entirety by a New Hampshire certified or licensed septic system evaluator. This form shall be signed by both the septic system evaluator and the property owner.

### PART 1. PROPERTY INFORMATION

- A. Tax Map Number \_\_\_\_\_ Lot Number \_\_\_\_\_
- B. Street address \_\_\_\_\_
- C. Owner's name \_\_\_\_\_
- D. Owner's mailing address \_\_\_\_\_
- E. Number of years the property has been owned by the current owner? \_\_\_\_\_
- F. Approximate year the home was built \_\_\_\_\_
- G. Year round ☐ or seasonal ☐ use (check one)
- H. Total number of bedrooms \_\_\_\_\_
- I. Total number of bathrooms \_\_\_\_\_
- J. Laundry facilities on site? ☐ YES ☐ NO
- K. Dishwasher on site? ☐ YES ☐ NO
- L. Garbage disposal? ☐ YES ☐ NO
- M. Source of water supply? ☐ dug well ☐ drilled well ☐ lake  
☐ shared/community well ☐ bottled water
- N. Greywater (i.e. laundry, dish, and bathwater) system on site? ☐ YES ☐ NO  
\*Illegal unless designed/sized in full accordance with rules or installed prior to 1967
- O. Outdoor Shower on site? ☐ YES ☐ NO  
\*Must be plumbed to an Individual Sewage Disposal System (ISDS)

# Evaluation and Certification Program



 <b style="font-size: 1.5em;">MERIDIAN</b> <b>Land Services, Inc.</b>		
PO BOX 118, MILFORD, NH 03055-0118 TEL: 603-673-1441 FAX 603-673-1584		
PAGE: 1 FILE: 9298.00	TITLE: <span style="background-color: #cccccc; display: inline-block; width: 100px; height: 1.2em;"></span> TOWN: <span style="background-color: #cccccc; display: inline-block; width: 100px; height: 1.2em;"></span>	

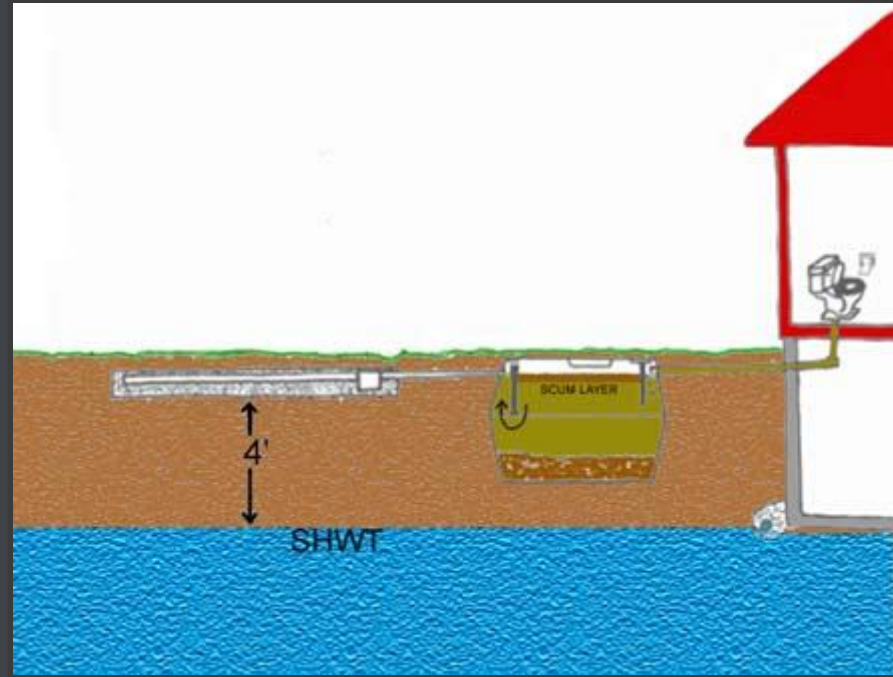
  

<b>TEST PIT NO.: 1</b> DATE: 7/22/14	<b>TEST PIT NO.: 2</b> DATE: 7/22/14																		
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 15%;">~ DEPTH ~</th> <th style="width: 85%;">~ DESCRIPTION ~</th> </tr> </thead> <tbody> <tr> <td>3"</td> <td>10YR 3/3 DARK BROWN FINE SANDY LOAM</td> </tr> <tr> <td>3-12"</td> <td>10YR 5/6 YELLOWISH BROWN COBBLEY SANDY LOAM, GRANULAR FRIABLE</td> </tr> <tr> <td>12-22"</td> <td>2.5Y 5/6 LIGHT OLIVE BROWN STONY LOAMY SAND, GRANULAR FRIABLE</td> </tr> <tr> <td>22-40"</td> <td>2.5Y 5/2 LIGHT GREY STONY LOAMY SAND MASSIVE FRIABLE</td> </tr> </tbody> </table>	~ DEPTH ~	~ DESCRIPTION ~	3"	10YR 3/3 DARK BROWN FINE SANDY LOAM	3-12"	10YR 5/6 YELLOWISH BROWN COBBLEY SANDY LOAM, GRANULAR FRIABLE	12-22"	2.5Y 5/6 LIGHT OLIVE BROWN STONY LOAMY SAND, GRANULAR FRIABLE	22-40"	2.5Y 5/2 LIGHT GREY STONY LOAMY SAND MASSIVE FRIABLE	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 15%;">~ DEPTH ~</th> <th style="width: 85%;">~ DESCRIPTION ~</th> </tr> </thead> <tbody> <tr> <td>3"</td> <td>10YR 3/3 DARK BROWN FINE SANDY LOAM</td> </tr> <tr> <td>3-14"</td> <td>10YR 5/6 YELLOWISH BROWN COBBLEY SANDY LOAM, GRANULAR FRIABLE</td> </tr> <tr> <td>14-30"</td> <td>2.5Y 5/4 LIGHT OLIVE BROWN STONY LOAMY SAND, GRANULAR FRIABLE</td> </tr> </tbody> </table>	~ DEPTH ~	~ DESCRIPTION ~	3"	10YR 3/3 DARK BROWN FINE SANDY LOAM	3-14"	10YR 5/6 YELLOWISH BROWN COBBLEY SANDY LOAM, GRANULAR FRIABLE	14-30"	2.5Y 5/4 LIGHT OLIVE BROWN STONY LOAMY SAND, GRANULAR FRIABLE
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# What's the Poop?

- 17 evaluations performed
- 4 Property owners bypassed evaluations and installed new systems
- 9 systems found in failure (53%)



# Evaluation and Certification Program

## Key aspects and take aways

- Inventory - time Intensive
  - Town records are incomplete
  - NHDES Subsurface Query – challenging to match up properties**need for tracking/follow up of construction approval permits**
- Scheduling the evaluations was challenging
- Great educational program for both the municipalities and the residents but **more education is needed**
- Low response to evaluation program disappointing; however, results indicate the number of failing systems that exist may be high



# 2<sup>nd</sup> Phase: Septic System Improvement Initiative

Voluntary – Incentive based

Open to Winona and Waukegan shorefront owners – 142 properties potentially eligible

Grant will pay 1/3 of the cost for repair/upgrade up to \$4000

9 Cost share grants awarded, 2 systems replaced to date

Funded through the NH DES 319 Watershed Assistance Program



**100 %  
Satisfaction  
All Around!**

*“Tom Carr arrived at the appointed time, did a thorough and professional inspection, and kept us informed of each aspect of the inspection. We’re very glad we took advantage of your program and very pleased with the outcome as well as the process.”*

“Now that I’m into these, I’m surprised 2/3’s didn’t go for it. \$250 out of pocket for the inspection that is being done is a huge bargain.

It’s been a good program and I’m glad we won the bid.”

*Tom Carr, Meridian Land Services*

**WOW !! AWESOME !!!!!!!!!!!**

We are THRILLED,  
and will let you know when it arrives!

***THANK YOU SO VERY MUCH !!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!***

Sharon and I are thrilled with this help and support.

Thank you !!



**And Cleaner Water!**

